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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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06/04/2003

Patent Administrator
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EXAMINER

SCHILLINGER, LAURA M

ART UNIT

PAPER NUMBER

2813

DATE MAILED: 06/04/2003

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/022,689

Applicant(s)

FITZGERALD, EUGENE A.

Examiner

Laura M Schillinger

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 35,39-41,44 and 45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 35, 39-41, 44 is/are rejected.
- 7) ☒ Claim(s) 45 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to Amendment C, in Paper No.13, dated 5/13/03.

Allowable Subject Matter

Claim 45 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Ismail teaches forming a graded SiGe layer (30) under compressive strain and then later teaches to form a relaxed layer 40 upon it. Ismail teaches that this results in a strain at the interface of the two layers resulting in a valence jump (Col.6, lines: 40-50), therefore there is a reduction of relaxation. However, Ismail fails to teach the combination of claimed limitations required by claim 45, where the **graded compressed SiGe** layer experiences a reduction in **compressive strain** as a result of a **second tensile strained layer**. Other related prior art teaches a reduction in compressive strain for **AlGaIn** layers as a result of a second tensile strained layer, however prior art fails to teach nor suggest this reduction for SiGe layers. Consequently, claim 45 contains allowable subject matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 38-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Ismail et al ('713).

In reference to claim 35, Ismail et al a method comprising:

Providing a semiconductor substrate (Fig.2 (20)); and

Providing on the substrate a graded region incorporating a first strain (Fig.2 (30) and Col.6. lines: 35-40); and

Processing the graded region so as to introduce a second type of strain, the previously incorporated first type strain reducing the processed induced second type of strain(Col.6, lines: 20-30-layer 40).

In reference to claim 39, Ismail teaches wherein the graded region comprises Si and Ge graded to an increasing concentration of Ge (Col.6. lines: 35-40), and the step of incorporating compressive strain comprises decreasing a temperature at which the graded region is grown as the Ge concentration increases in the graded region (Col.6, lines: 40-55) .

In reference to claim 40, Ismail teaches wherein incorporating compressive strain comprises growing alloys of GeSi at 35-100%(Col.6, lines: 25-35).

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In reference to claim 41, Ismail teaches planarizing at least one surface (Col.4, lines: 45-50).

In reference to claim 44, Ismail teaches planarizing at least one surface (Col.4, lines: 45-50).

Response to Arguments


Applicant's arguments filed 5/20/03 have been fully considered but they are not persuasive. Applicant argues that Ismail fails to teach a first and second strain wherein processing results in the reduction of the second strain type. However as taught by Ismail the second strain type may be considered "relaxed" and the formation of layer 40 above layer 30 results in a increased strain and therefore a reduced relaxation and therefore anticipates the claim language of amended claim 1.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M Schillinger whose telephone number is (703) 308-6425. The examiner can normally be reached on M-T, R-F 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W Whitehead, Jr. can be reached on (703) 308-4940. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


CARL WHITEHEAD, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

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May 30, 2003